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EXAMINER

HUFFMAN, JULIAN D

ART UNIT

PAPER NUMBER

2853

DATE MAILED: 02/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/092,701

Applicant(s)

MAKI ET AL.

Examiner

Julian D. Huffman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-72 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3,5,7,9,11,13,15-19,32,34,36,43,45,47,49,51,53,55 and 57 is/are allowed.
- 6) ☒ Claim(s) 1,2,4,6,8,10,12,20-23,27-31,33,35,37,40-42,44,46,48,50,52,56,58-62 and 66-70 is/are rejected.
- 7) ☒ Claim(s) 14,24-26,38,39,54,63-65,71 and 72 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant was contacted regarding a restriction requirement. However upon further review, the examiner has determined that a restriction in this instance would not be proper. All claims are accordingly examined and no election or restriction has been made.

Claim Objections

2. Claim 18 is objected to because of the following informalities:

In claim 18, it is respectfully suggested that the phrase "is stopped being impressed" be changed to read "is not applied" and the phrase "stopped being" be changed to "not".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1 and 20-23 are rejected under 35 U.S.C. 102(b) as being anticipated by Bannai et al. (U.S. 5,121,170).

Bannai et al. disclose a recording-medium conveying device comprising:

a conveying belt (fig. 1, element 2) wound around a driving roller (4') and a driven roller (4) so as to convey said recording medium to said image recording part, the conveying belt having an insulating layer (fig. 9, element 2a) formed at at least a side contacting said recording medium; and

a belt charging unit (3) provided in contact with said conveying belt so as to charge said conveying belt with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias (5) to said conveying belt;

wherein said belt charging unit applies said AC bias to said conveying belt while said conveying belt conveys said recording medium, and said belt charging unit stops applying said AC bias to said conveying belt while said conveying belt stops conveying said recording medium (the bias is only applied to the belt when it is rotating);

wherein said belt charging unit applies said AC bias to said conveying belt while said conveying belt is continuously revolved, before said conveying belt conveys said recording medium (column 6, lines 44-46); and

wherein said conveying belt is formed of one layer of said insulating layer (2a);

wherein said conveying belt is formed of two layers composed of said insulating layer (2a) formed at one side contacting said recording medium and a conductive layer (2b) formed at the other side not contacting said recording medium.

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5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 10, 12, 27, 28, 30, 31, 33, 35, 37, 40-42, 50, 52, 56, 58-62, 66, 67, 69 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rasmussen et al. (U.S. 6,179,419) in view of Bannai et al.

Rasmussen et al. disclose an ink jet recording device with a recording-medium conveying device comprising:

a recording head (12) mounted on a carriage (column 1, lines 24-27) in an image recording part so as to record an image by jetting ink drops on a recording medium;

a recording-medium feeding device containing said recording medium, and separating and feeding said recording medium one by one therefrom; and

a recording-medium conveying device including:

a conveying belt (32) wound around a driving roller (38) and a driven roller (40) so as to convey said recording medium to said image recording part;

a pressing roller (44) pressing said conveying belt against said driving roller by exerting an elastic force so as to prevent said conveying belt from slipping on said driving roller, wherein said pressing roller is provided at a position downstream in a revolving direction of said driving roller (fig. 1);

wherein said conveying belt is formed of a timing belt with timing marks provided at a side not contacting the recording media (fig. 5, column 5, lines 20-39);

a conveyance distance detecting unit including a binary scale provided on a part of said conveying belt along the moving direction thereof, wherein one of a reflected light and a transmitted light from said binary scale is detected so as to control a revolving velocity and a stopping position of said driving roller (fig. 5, column 5, lines 20-39 and column 6, line 64-column 7, line 7);

an optical sensor provided opposite a part of said conveying belt downstream and near said driving roller (figs. 5 and 6) so as to detect one of said reflected light and said transmitted light (column 5, lines 31-33); and

a conveying-belt driving unit (33) driving said driving roller which is controlled according to detected conveyance speed and conveyance distance (column 6, line 64-column 7, line 7).

Rasmussen et al. do not disclose a belt charging system.

Bannai et al. disclose a belt charging system (fig. 1, element 3) in contact with an insulating layer (fig. 9), provided opposite a driving roller at a position upstream in a revolving direction of said driving roller from a position at which said recording medium fed from said recording medium feeding device contacts said conveying belt, so as to charge said conveying belt with a positive charge and a negative charge alternately in a moving direction of said conveying belt by applying an AC bias (5) to said conveying belt;

wherein said conveying belt is formed of two layers composed of said insulating layer (2a) formed at one side contacting said recording medium and a conductive layer (2b) formed at the other side not contacting said recording medium; and

wherein a driven roller is grounded (fig. 1);

wherein said belt charging unit applies said AC bias to said conveying belt while said conveying belt conveys said recording medium, and said belt charging unit stops applying said AC bias to said conveying belt while said conveying belt stops conveying said recording medium (the bias is only applied to the belt when it is rotating); and

wherein said belt charging unit applies said AC bias to said conveying belt while said conveying belt is continuously revolved, before said conveying belt conveys said recording medium (column 6, lines 44-46).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate the belt charging system, including the two layered belt, and the belt charging unit, in the invention of Rasmussen et al. The reason for performing the modification would have been to provide a device capable of surely retaining and transporting a sheet member by a simple construction, while positioning the sheet member accurately relative to a transporting means thereof (column 4, lines 55-58).

7. Claims 4, 6, 44 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rasmussen et al. in view of Bannai et al. as applied to claims 1, 2, 10, 12, 27, 28, 30, 31, 33, 35, 37, 40-42, 50, 52, 56, 58-62, 66, 67, 69 and 70 above, and further in view of Munakata (JP Application 10264047).

Rasmussen et al. as modified by Bannai et al. disclose everything claimed with the exception of providing urethane on the driving roller.

However, Munakata discloses this (abstract).

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide urethane on the driving roller of Rasmussen et al. as modified by Bannai et al. The reason for performing the modification would have been to secure the driving force of the driving roller (abstract).

8. Claims 8, 29, 48 and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rasmussen et al. in view of Bannai et al. and Matsuoka (U.S. 5,530,535).

As discussed above, Rasmussen et al. as modified by Bannai et al. disclose everything claimed with the exception of wherein at least one of said driving roller and said driven roller is a grip roller having a plurality of projections.

However, Matsuoka discloses providing projections on a driving roller and a driven roller which mate with perforations on the belt (column 6, lines 51-62 and fig. 3).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the projections and perforations taught by Matsuoka into the invention of Rasmussen et al. as modified by Bannai et al. The reason for performing the modification would have been to prevent the driving roller from slipping relative to the endless belt or from idling (column 6, lines 56-59).

Allowable Subject Matter

9. Claims 3, 5, 7, 9, 11, 13, 15-19, 32, 34, 36, 43, 45, 47, 49, 51, 53, 55 and 57 are allowed.

10. Claims 14, 24-26, 38, 39, 54, 63-65, 71 and 72 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11. The primary reason for the allowance of claims 3, 5, 7, 9, 11, 13, 15, 32, 34, 36, 43, 45, 47, 55 and 57 is the inclusion of the limitation of the conveying belt being narrower than said recording medium. It is this limitation found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art.

The primary reason for the allowance of claims 16-19 is the inclusion of the limitation of the driving roller being connected to ground. It is this limitation found in each of the claims, as it is claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes these claims allowable over the prior art. In Bannai et al., the driven roller is connected to ground and the driving roller is not connected to ground.

With regards to claim 14, the prior art of record does not suggest or disclose the driving roller and driven roller having different diameters, as claimed in the combination.

With regards to claim 24 and 63, the prior art of record does not disclose a volume resistivity equal to or more than 10^{12} Ohms cm. Bannai et al. disclose 10^8 Ohms cm.

With regards to claims 25, 26, 64 and 65 the prior art of record does not disclose or suggest the conveying belt being formed narrower than the recording medium.

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With regards to claims 38, 39, 71 and 72 the prior art of record does not disclose or suggest the value being obtained by dividing a maximum resolution of an image to be recorded on said recording medium by n , where n is an integer larger than zero.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian D. Huffman whose telephone number is (703) 308-6556. The examiner can normally be reached on Monday through Friday from 9:30 a.m. to 6:00 p.m.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow, can be reached at (703) 308-3126. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7722. Faxes requiring the immediate attention of the examiner may be sent directly to the examiner at (703) 746-4386. Note that this number will not automatically send a confirmation that the fax was received.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



JH

23 February 2003



Thinh Nguyen
Primary Examiner
Technology Center 2800